

Fooling flies with dung mimicry: New Zealand & Tasmanian Splachnaceae mosses

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Bryophytes are not well known for their dynamic interactions with animals but microarthropods and insects can be important vectors for dispersing moss sperm and spores. Splachnaceae mosses provide no rewards for their insect visitors, and instead appear to actively attract and exploit insects with deceptive mimicry. Splachnaceae mosses uniquely grow only on decaying carcasses, bone, or dung. This scarce and patchily distributed habitat may be difficult for most mosses to colonise given their reliance on passive dispersal by water. To achieve dispersal, apparently primitive Splachnaceae appear to have sophisticated adaptations that attract and exploit flies, much like Asia's famous carrion-mimicking *Rafflesia* flowers. We tested for dung and carrion mimicry and insect exploitation by NZ and Tasmanian Splachnaceae mosses. We used gas chromatography-mass spectrometry to compare the appalling rotting odours of the moss spores and sporophytes with odours produced by gametophytes, underlying rotten substrates, fresh carnivore and herbivore dung, and synthetic compounds typically associated with carrion-mimicry by other plants. In the field, insects visiting moss, carrion, and fresh herbivore and carnivore dung, were trapped with hand nets, bottle traps and pitfall traps. These investigations revealed the importance of New Zealand's native fly and dung beetle fauna in interactions with bryophytes.

